



Let's Go GREEN

Biodegradable Additive Technology

At ISC Plastic Parts we offer the possibility of manufacturing products from our catalogue using **Biodegradable Additive Technology**.

To the original material used to manufacture the parts, we add an additive that makes the part biodegrade in an open environment in a much shorter period than conventional plastic.

The additive does not modify at all the properties of the material to which it is added. It contains an enzyme that, once the useful life of the part is over and in contact with soil microbes, causes an **enzymatic process** that shortens the process of biodegradation of the material.

The result, once this process is finished, is CO₂, water and biomass. Therefore, the **ecological footprint is zero**.

It is just a grain of sand from ISC in our attempt to contribute in the field of sustainability through innovation and development.

This additive technology, when combined as a **one-percent** load to the most widely used plastic resins, renders the finished plastic products biodegrade faster than conventional plastic while maintaining all their properties and other desired characteristics.

1%

Combined to most plastic resins

O

Ecological Footprint

ISC

The process enables the microorganisms in the environment to metabolize the molecular structure of plastic products into **biomass**. This process uses several proprietary compounds that are combined into a masterbatch pellet that is easily added to plastic resins through existing technology.

Plastic products manufactured with this additive will biodegrade in any biologically-active environment (including most landfills) in a period much shorter than conventional plastic.

Unlike the oxo-degradable plastics, the result is the biodegradation of the product and not its fragmentation.

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REUSE

This additive technology maintains all the characteristics of plastics. It's also possible to have a long-lasting product.

RECYCLE

Products containing this additive can be recycled along with other plastic materials.

BIODEGRADE

Plastic products featuring this additive biodegrade into biomass much faster than conventional plastics.

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This additive can be applied to the main polymers

EVA, PE, PP, PS, PET, PVC, PA, PU...

and any combination between them dosed at least 1%.

It is suitable for any plastics transformation process:

**INJECTION, EXTRUSION,
THERMOFORMING...**



FULL BIODEGRADATION

In landfills

In compost

If buried or littered in the ground

In agricultural and erosion-control settings

The plastic packaging and products will biodegrade without the need for additional reaction to heat, light or physical stress and will biodegrade wherever they are disposed of where there is other biodegradation occurring.

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THE ADDITIVE

Is toxic residue free.

Is available clear or in colour.

Does not compromise the physical properties.

Is FDA Compliant for food contact.

THE RESULTING PRODUCT

Is recyclable.



Can be manufactured with recycled resins.

Does not require special handling.

Does not contain heavy metals.

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Our first products made with **BIODEGRADABLE ADDITIVE**



Mask Case

SmartHook™



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More Information

<https://www.ecmbiofilms.com/>

<http://www.polimerus.com/>



TECHNICAL DATA SHEET

ECM MasterBatch Pellets™

ECM6.0404

Description/Features: ECM MasterBatch Pellets™ ECM6.0404 is a heavily loaded concentrate for use in plastic resins for manufacturing biodegradable* plastic products. ECM6.0404 must be used at a minimum of a one percent (1%) addition level (always accounting for one's inherent margins of error in their loading procedures and equipment).

Applications: Recommended for extruding film and sheet (blown or cast), blow molding, injection molding and rotomolding products and parts where cosmetics are hypercritical such as for consumer-visible product packaging.

	Standard	Parameter	Value	Unit
Concentrate Properties				
Carrier Resin			LDPE	
Melt Flow Rate	ASTM D1238	190°C/2.16kg	2.5	g/10 min
Specific Gravity	ASTM D792		1.114	g/ml
Moisture	AZI Analyzer		< 2	%
Melting Point (Fisher-Johns)	ASTM D789		115 (239)	°C (°F)

Physical Properties	
Product Form	Off-white colored pellets

Regulatory Information ECM MasterBatch Pellets™ ECM6.0404 is made only from FDA recognized materials and processes regulated according to 21 CFR 175.300, 177.1200, 177.1520 and other sections and fully complies with SCF (the Scientific Committee for Food), EFSA (The European Food Safety Authority), for food contact applications.

Storage Information Although no known shelf life has been determined for this concentrate, ECM BioFilms, recommends that inventories are rotated and used within 12 months of purchase for optimum performance. If less than a full, sealed package is used in one session, the package should be resealed before storage because the pellets will absorb moisture if left to the open air for extended periods of time.

Safety Information ECM MasterBatch Pellets™ ECM6.0404 is not known to contain hazardous materials as outlined by current OSHA regulations. Please refer to the MSDS for additional safety information.

Packaging Information ECM MasterBatch Pellets™ ECM6.0404 is typically packaged in moisture-barrier, lined fiber drums or Gaylord boxes.

The data and information represented herein refer to typical values obtained in our laboratories by the methods or apparatuses indicated, and should be so considered. Since processing variables are a major factor in product performance, this information should serve only as a guide. Since customers' testing conditions are outside our control, the reproducibility of our data in a customer's testing facility is not guaranteed. There is no implied warranty of merchantability or fitness for a particular purpose. Establishing satisfactory performance of the additive for the intended application is the customer's sole responsibility. No warranty is given concerning the existence or non-existence of any patents claiming any pertinent subject matter presented herein. The Company assumes no obligation, express or implied, or liability for use of the information and data presented.

* 49.28% biodegradation in 900 days under non-typical conditions. No evidence of further biodegradation.

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We are aware that this is just a small gesture, that this isn't going to save our Environment from plastic pollution.

But, as individuals and as a company, we also have the responsibility to be proactive, to keep looking for realistic and effective solutions through research and development.

Let's keep going.